

PATENT
Atty. Dkt. No. ROC920030129US1
PS Ref. No.: IBMK30129

REMARKS

This is intended as a full and complete response to the Final Office Action dated July 28, 2005, having a shortened statutory period for response set to expire on October 28, 2005. Applicants submit this response to place the application in condition for allowance or in better form for appeal. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-5 and 7-33 are pending in the application. Claims 11-20 have been withdrawn from consideration. Claims 1-5, 7-10 and 21-33 remain pending following entry of this response. Applicants submit that the amendments do not introduce new matter.

Double Patenting

Claims 1, 8 and 29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/418,592. Applicants acknowledge the double patenting rejection made in the Final Office Action mailed July 28, 2005, and respectfully request that the rejection be held in abeyance because (i) no claim in the present application is currently allowable and (ii) the application on which the rejection is made (No. 10/418,592) has not issued. Because it is possible that no claims will issue, or that the claims of the present application will be amended in such a way to overcome the Examiner's concerns regarding double patenting, Applicants request that a determination on an actual double patenting rejection be held in abeyance until the 10/418,592 application issues and at least one claim (which the Examiner believes is subject to double patenting rejection in view of 10/418,592) of the present application is allowed.

Claim Rejections - 35 U.S.C. § 102

Claims 1, 4-5 and 8-9 are rejected under 35 U.S.C.,102(e) as being anticipated by U.S. Patent No. 6,694,306 issued to *Nishizawa et al.* (hereinafter "*Nishizawa*"). Applicants respectfully traverse this rejection.

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"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

In this case, *Nishizawa* does not disclose "each and every element as set forth in the claim." For example, *Nishizawa* does not disclose providing a logical model to logically describe the physical fields of the underlying physical database, the logical model comprising logical fields corresponding to respective physical fields, as recited by claims 1 and 8. The Examiner argues that *Nishizawa* discloses this limitation at *Nishizawa*, 1:38-48, and *Nishizawa*, 3:48-61. However, the cited passages are in fact directed to extensions made to a database schema using "virtual tables" and "partial replicas." These two constructs however, are merely extensions of a relational schema, and not an abstraction thereof. For example, part of a passage, cited by the Examiner, provides:

a query issued to a schema composed of virtual tables is converted to access real databases. ... The approach of accessing real databases through a virtual schema, which is called database integration or schema integration, has been studied by many researchers in the academic society since around 1980.

Nishizawa, 1:43-50. As this passage demonstrates, *Nishizawa* discloses a database query that is composed and issued according to the schema of "virtual tables" that may be transformed into underlying physical tables. Doing so requires users to compose a query according to the schema of virtual tables, which itself requires users to understand the schema. In other words queries disclosed in *Nishizawa* are always relational queries (e.g., SQL queries) composed to retrieve data from defined tables, whether virtual or otherwise, on the basis of the underlying schema. References to a virtual table may have to be resolved to either a "partial replica" or underlying "physical table" during query processing. Nevertheless, Applicants submit that this fails to teach or suggest a logical model to logically describe the physical fields of the underlying

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physical database, the logical model comprising logical fields corresponding to respective physical fields, as recited by claims 1 and 8. The "virtual tables" and "partial replicas" of *Nishizawa* are just an extension of the underlying schema, and queries are dependent on this structure. In contrast, the logical fields provide a representation of data that is independent from the schema of an underlying physical database.

Further, as *Nishizawa* fails to disclose a logical model, *Nishizawa* also fails to disclose logical fields wherein each logical field is defined by a logical field name, at least one location attribute identifying a location of physical data corresponding to the logical field and a reference to an access method selected from at least two different access method types, as claimed. The cited passages from *Nishizawa* disclose that "Columns in the virtual table are mapped to columns in tables in real databases, or columns in views in real databases, or columns in another virtual table (all these are hereinafter simply referred to as columns in databases) or calculation results for these columns, and columns in the virtual table are referenced by an application and queries are issued not to columns in databases but to columns in the virtual table." *Nishizawa*, 3:51-53. However, as described above, "virtual" or otherwise, the queries are composed according to a schema of tables and columns. Thus, Applicants submit that *Nishizawa* fails to disclose a logical model that provides a plurality of logical fields each with an access method selected from at least two different access method types, in the manner claimed. Instead, *Nishizawa* discloses resolving a reference to columns in one table to a column in another table. Further, *Nishizawa* discloses a local "partial replica" of data storage that in certain cases may be accessed to avoid transmitting a relational query to a remote database. Neither of these data integration techniques described in *Nishizawa*, however, teach or suggest a logical model, with logical fields and access methods, as recited in claims 1 and 8.

Accordingly, for all the reasons set forth above, *Nishizawa* fails to teach or suggest the limitations recited by claims 1 and 8. Therefore, Applicants submit that claims 1, 8 and dependant claims 2-5, 7, 9, and 10 are allowable, and Applicants respectfully request that these claims be allowed.

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Claims 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,963,938 issued to *Wilson et al.* (hereinafter "*Wilson*"). Applicants respectfully traverse this rejection.

In this case, *Wilson* does not disclose "each and every element as set forth in the claim." For example, *Wilson* does not teach or suggest receiving user input receiving user input specifying a selection and a location, in the graphical user interface, of a first logical result field; wherein the graphical user interface allows user selection of logical result fields from the logical model and supports combinatorial relations between user selected logical result fields, as recited by claims 24 and 26. The Examiner asserts that *Wilson* at 9:54-67 and 10:1-23 discloses this element. However, these passages are directed to displaying a graphical dialog box that allows users to compose query by specifying column names, operators and conditions. Nothing in this material discloses the location of a logical result field being received as part of the user input. Rather, the location of display elements is an arbitrary artifact of how the dialog box is composed and displayed. The Examiner also references Figures 10-12; however, these figures also fail to disclose user input specifying a location. Instead, these figures make clear that the user input is provided in locations arbitrarily determined by the size, shape and contents of the dialog box.

Further, claim 26 goes on to recite the limitation of receiving user input specifying a selection and location ... [of a first and second logical field result], wherein the first and second logical field results have a relative geometric relationship ... and transforming the executable relationship ... as a result of the relative geometric relationship. The Examiner asserts that *Wilson* discloses the transforming step recited by claim 26 at *Wilson*, 12:17-20. Set out in full, this passage provides:

... Any logical function executed by an application running on a processor 12 may be included in the basic function initiated by the initiate step 72.

Wilson, 12:17-20. The passage appears to have no relationship to the recited limitation of "transforming the abstract query into an executable query containing at least one combinatorial statement containing counterparts of the first and second logical result fields, and being generated as a result of the relative geometric relationship." Quite

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simply, this passage utterly fails to disclose the relative geometric relationship of a first and second logical field to transform an abstract query into an executable query.

Accordingly, for all the reasons set forth above, *Wilson* fails to teach or suggest the limitations recited by claims 24 and 26. Therefore, Applicants submit that claims 24, 26, and dependent claim 25 is allowable, and Applicants respectfully request that these claims be allowed.

Claim Rejections - 35 U.S.C. § 103

Claims 2-3, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishizawa* as applied to claims 1 and 8 above, and further in view of *Wilson*.

Claims 2, 3, 7 and 10 depend from one of claims 1 or 8. Because Applicants believe the rejection of claims 1 or 8 is traversed by the remarks above, the rejection of these dependent claims is obviated without the need for further comment.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishizawa* and further in view of *Wilson*. Respectfully, Applicants traverse the rejection.

Among others, claim 29 recites the limitation of "a logical model comprising a plurality of logical field definitions mapping to physical fields of physical entities of data, whereby the logical model provides a logical view of the data, each of the definitions comprising a logical field name, at least one location attribute identifying a location of physical data corresponding to the logical field name and a reference to an access method selected from at least two different access method types; wherein each of the different access methods types defines a different manner of exposing the physical data corresponding to the logical field name of the respective logical field definition."

As demonstrated above, *Nishizawa* fails to disclose a logical model that provides a set of logical fields for composing an abstract query. Rather, *Nishizawa* discloses extensions to a relational schema referred to as a "virtual table." The extensions provide a mapping from one table and column to another table and column. For example, a portion of the material cited by the Examiner provides: "Columns in the virtual table are mapped to columns in tables in real databases, or columns in views in

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real databases, or columns in another virtual table (all these are hereinafter simply referred to as columns in databases) or calculation results for these columns, and columns in the virtual table are referenced by an application and queries are issued not to columns in databases but to columns in the virtual table." *Nishizawa*, 3:51-53. In contrast, there are no columns or tables in the logical model. The logical fields may be used to compose an abstract query independently from the schema of any set of tables and columns, virtual or otherwise.

Furthermore, claim 29 recites a limitation of "a graphical user interface allowing user selection and arrangement of logical result fields ... wherein the graphical user interface comprises input cells for user-selected logical result fields and wherein a predefined geometric relationship between cells specifies whether user-selected logical result fields in the cells are related by a first combinatorial statement type or a second combinatorial statement type." The Examiner concedes that *Nishizawa* fails to teach or suggest this limitation, but asserts that *Wilson* teaches this limitation at Figures 5-12, and *Wilson*, 3:25-31, and 14:42-60. However, this material is directed to dialog boxes that allow users to specify certain query elements. Nothing in this material discloses user input cells wherein the relative geometric position of query elements specifies that different cells are "related by a first combinatorial statement type or a second combinatorial statement type," as recited by claim 29. As demonstrated above regarding claims 24 and 26, *Wilson* does not teach or suggest an interface for composing an abstract query where the relative geometric position of query elements is specified as part of user input; rather, it teaches an interface where the positions of query elements is dictated by the arbitrary composition of a dialog box. See e.g., *Wilson*, figures 5-12.

Accordingly, for all the reasons set forth above, *Nishizawa*, in view of *Wilson*, fails to teach or suggest the limitations recited by claim 29. Therefore, Applicants submit that claim 29 is allowable. Applicants respectfully request that these claims be allowed.

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Claims 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishizawa* and further in view of *Wilson* as applied to claim 29 above, and further in view of U.S. Patent No. 6,640,221 issued to *Levine et al.* (hereinafter "*Levine*").

Claims 30-33 depend from claim 29. Because Applicants believe the rejection of claim 29 is traversed by the remarks above, the rejection of these dependent claims is obviated without the need for further comment.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishizawa* and further in view of *Wilson*. Applicants respectfully traverse this rejection.

Among others, claim 21 recites the limitation of "a logical model to logically describe the physical fields, the logical model comprising logical fields corresponding to respective physical fields." As demonstrated above, *Nishizawa* fails to disclose a logical model that provides a set of logical fields. Rather, *Nishizawa* discloses extensions to a relational schema referred to as a "virtual table." The extensions provide a mapping from one table and column to another table and column. Thus, *Nishizawa* fails to disclose this limitation.

Furthermore, claim 21 recites the limitations of "receiving user input specifying a selection and a location ... of a first logical result field [and a second logical result field], wherein the first and second logical result fields have a relative geometric relationship and define at least a portion of an abstract query; and transforming the abstract query into an executable query containing at least one combinatorial statement containing representations of the first and second logical result fields, and being generated as a result of the relative geometric relationship. As set forth above, the material from *Wilson* relied on by the Examiner does not teach or suggest receiving user input for a first and second logical result field, wherein the fields have a relative geometric relationship. Additionally, the Examiner asserts that *Wilson* discloses the transforming step at *Wilson*, 12:17-20. Again, in full this particular passage provides:

... Any logical function executed by an application running on a processor 12 may be included in the basic function initiated by the initiate step 72.

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Wilson, 12:17-20. As discussed above, this passage appears to have no relationship to the recited limitation of "transforming the abstract query into an executable ... generated as a result of the relative geometric relationship."

Accordingly, for all the reasons set forth above, *Nishizawa*, in view of *Wilson*, fails to teach or suggest the limitations recited by claims 21. Therefore, Applicants submit that claim 21 and dependent claims 22 and 23 are allowable, and Applicants respectfully request that these claims be allowed.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Wilson* as applied to claim 26 above, and further in view of *Levine*.

Claim 28 depends from claim 26. Applicants believe the rejection of claim 26 is traversed by the remarks above. Accordingly the rejection of this dependent claim is obviated without the need for further comment.

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Conclusion

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

If the Examiner believes any issues remain that prevent this application from going to issue, the Examiner is strongly encouraged to contact Gero McClellan, attorney of record, at (336) 643-3065, or the undersigned attorney to discuss strategies for moving prosecution forward toward allowance.

Respectfully submitted,



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